

REMARKS

In the Final Office Action, the Examiner rejected pending claims 1-12. In view of the following remarks, Applicants respectfully request allowance of all pending claims 1-12.

Claim Rejections – 35 USC § 102

Claims 1-8, 11, and 12 were rejected under 35 U.S.C. 102(b) as being anticipated by pages 429, 434-437, 452, and 453 of Wolf and Tauber (Silicon Processing for the VLSI Era Volume 1: Process Technology), hereinafter “Wolf.” Claims 1 and 12 are independent. Applicants respectfully traverse this rejection.

Legal Precedent

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). Every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). The prior art reference must show the *identical* invention “*in as complete detail as contained in the ... claim*” to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added).

Independent Claims 1 and 12

Independent claims 1 and 12 recite a *two-step* soft-bake. In contrast, the Wolf reference teaches the typical *single-step* soft-bake. See pages 434-436; Fig. 14. While

Wood also teaches a post-bake (which occurs after the soft-bake and after the resist has been exposed), Wolf is absolutely devoid of a *two-step soft*-bake. See Wolf, pages 434-437 and 452; Fig. 14 (disclosing only a single-step soft-bake); Application, page 4, lines 1-5; page 5; lines 1-2; page 8, lines 8-9 and 14-15; page 9, lines 15-19 (discussing an embodiment of a two-step soft bake). Therefore, the Wood reference cannot anticipate the present claims 1-12.

In a previous Office Action, the Examiner incorrectly pointed to the Wolf post-bake as a second step of a soft bake. See, e.g., Office Action Mailed November 9, 2005, page 2. However, in the “Response of Arguments” section of the Final Office Action, the Examiner changed his argument and focused instead on the infrared single-step soft-bake of Wolf. See Final Office Action, page 6 (citing Wolf, page 437 and Figure 12 (c)). Surprisingly, the Examiner argued that the time required for the wafer to reach the soft-bake temperature is somehow a separate soft-bake step. See *id.* (contending incorrectly that the ramp-up portion of the temperature curve of Fig. 12 (c) represents baking the Wolf wafer at a first temperature for a first predetermined period of time). Yet, one of ordinary skill in the art would *not* view the warm-up of the wafer (or the cool-down of the wafer for that matter) as a separate and distinct soft-bake step conducted at a different temperature at a predetermined *period* of time, as claimed.

A wafer in any single-step soft bake will generally warm to the desired bake temperature and then cool at the conclusion of the bake. Such behavior (a transition temperature region) may also be seen in the claimed two-step soft-bake, i.e., before and

after each of the two baking steps. However, the two recited steps of claim 1 are not directed to the warm-up or other temperature transition of the wafer.

Instead, claim 1 clearly recites a two-step soft bake, where the wafer is baked at “a first temperature for a first predetermined *period* of time” and at “a second *higher* temperature for a second predetermined *period* of time.” Wolf fails to disclose these features. Moreover, with regard to the specific numerical values (for temperature and time) mentioned by the Examiner, Applicants note that independent claims 1 and 12 do not recite numerical values or ranges. *See* Final Office Action, page 6. In view of the foregoing, Applicants respectfully assert that the Examiner has failed to establish a case of anticipation.

Independent Claim 12

Independent claim 12 specifically recites “a semiconductor wafer comprising a resist layer without craters at the completion of a two-part soft bake.” In contrast, while Wolf refers to the “pinhole concentration” in the resist layer, Wolf does *not* disclose a semiconductor wafer having a resist layer *without craters*. *See* pages 434-436; Fig. 14. The Examiner cited Fig. 14 of Wolf in support of his assertion that Wolf discloses a resist layer without craters. *See* Office Action, page 3. However, after careful review of the cited reference, Applicants emphasize that Wolf fails to even contemplate a semiconductor wafer having a resist layer *without craters*. *See* Wolf, pages 429-437 and 452-453. Therefore, the Wolf reference cannot anticipate the claim 12 for this additional reason.

Request Withdrawal of Rejection

In view of these reasons, Applicants respectfully request that the Examiner withdraw the rejection of claims 1-8, 11, and 12 under 35 U.S.C. 102(b).

Claim Rejections – 35 USC § 103

Dependent claims 9 and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf as applied to claims 1-7 above. Applicants respectfully traverse this rejection.

Legal Precedent

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). To establish a *prima facie* case, the Examiner must not only show that a modified reference includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the reference. *See Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). The Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *See In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002).

Claims 9 and 10

As discussed, Wolf fails to disclose the second soft-bake step recited in independent claim 1. Therefore, dependent claims 9 and 10 are patentable over Wolf by

virtue of their dependency on an allowable base claim. Furthermore, as acknowledged by the Examiner, Wolf fails to disclose the specific temperature range and time period recited in claims 9 and 10, respectively. *See* Office Action, pages 4-5; Wolf, pages 429-437 and 452-453. Thus, dependent claims 9 and 10 are also patentable over Wolf because of the subject matter they separately recite. In view of these reasons, Applicants respectfully request that the Examiner withdraw the foregoing rejection of claims 9 and 10 under 35 U.S.C. § 103(a).

Further, contrary to the Examiner's assertions, Applicants emphasize that the specific process conditions (i.e., temperature and time) associated with the second soft-bake step, as recited in dependent claims 9 and 10, are *not* obvious. *See* Office Action, pages 4-6. Moreover, also contrary to the Examiner's assertions on pages 4-6 of the Final Office Action, the unique results (e.g., no resist craters) associated with the new soft-bake (having a second baking step) with the claimed process conditions are discussed in the present specification. *See, e.g.*, Application, page 9, lines 12-21.

Conclusion

If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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